CLAIMS

What is claimed is:

1. A method for seamless mobility of mobile terminals in a wireless network, the method comprising:

(a) utilizing a reassociation request from the mobile terminal to identify need for an internetwork handover of the mobile terminal roaming in a wireless local area network (WLAN); and

(b) performing a protocol sequence in an access point (AP) for the mobile terminal to handle the internetwork handover to ensure connectivity of the mobile terminal while roaming.

2. The method of claim 1 wherein the step (a) of utilizing a reassociation request further comprises (a1) utilizing fields for internet protocol (IP) data in the reassociation request.

3. The method of claim 2 wherein the fields further comprise a home access point IP address, a mobile terminal IP address, and a previous access point IP address.

4. The method of claim 1 further comprising (c) performing a standard handover protocol sequence when no internetwork handover is identified.

5. A system for seamless mobility of mobile terminals in a wireless network, the system comprising:

a plurality of Internet protocol (IP) networks; and

a plurality of service sets within each IP network, the service sets supporting mobile terminals communicating wirelessly among the IP networks via access points (APs), the APs utilizing a reassociation request from a mobile terminal to identify need for an internetwork handover of the mobile terminal roaming wirelessly in the network and performing a protocol sequence for the mobile terminal to handle the internetwork handover to ensure connectivity of the mobile terminal while roaming.

6. The system of claim 5 wherein the AP utilizes fields for IP data in the reassociation request to identify the internetwork handover.

7. The system of claim 6 wherein the fields further comprise a home access point IP address, a mobile terminal IP address, and a previous access point IP address.

8. The system of claim 5 wherein the AP further performs a standard handover protocol sequence when no internetwork handover is identified.

9. The system of claim 5 wherein the protocol sequence further comprises:

establishing a sequence of IP tunnels in the wireless network;

generating a set of primitives at the APs within the wireless network; and

adding onto management entity architecture for the AP in an AP protocol stack.

10. A method for providing a protocol sequence to support seamless mobility of mobile terminals in a wireless network, the method comprising:

establishing a sequence of IP (Internet protocol) tunnels between access points (APs) in the wireless network;

generating a set of primitives at the APs within the wireless network; and

adding onto management entity architecture for the AP in an AP protocol stack, wherein IAPP (Inter-Access Point Protocol) functionality is extended to maintain substantially constant IP-connectivity during handovers of the mobile terminal between APs while roaming in the wireless network.

11. The method of claim 10 wherein establishing a sequence of IP tunnels further comprises:

establishing a uni-directional IP tunnel from a previous AP of the mobile terminal to a new AP to which the mobile terminal attaches; and

establishing one of the group comprising a bi-directional tunnel and two uni-directional tunnels from a home AP of the mobile terminal to the new AP.

12. The method of claim 11 wherein generating a set of primitives further comprises generating the set of primitives according to standard IAPP service primitives.

13. The method of claim 12 wherein generating a set of primitives further comprises generating a roam request primitive, a roam response primitive, a create-tunnel request primitive, and a create-tunnel response primitive.

14. The method of claim 13 wherein generating a set of primitives further comprises generating a set of corresponding packets, the set of corresponding packets further comprising TCP/IP packets of a roam request packet and a roam response packet, and UDP/IP packets of a create-tunnel request packet and a create-tunnel response packet.

15. The method of claim 14 further comprising:

generating the roam request primitive in a new AP in response to receipt of a reassociation indication in the case of a network handover of a mobile terminal; and

triggering the sending of the roam request packet from the new AP to the home AP when the mobile terminal is associating to the new AP in a different network, including a foreign network and subnetwork, the roam request packet triggering creation of the bi-directional IP tunnel between the home AP and the new AP, the roam request packet comprising a packet format for an IAPP MOVE-notify with an addition of a field for the home AP IP address and a mobile terminal IP address.

16. The method of claim 15 further comprising:

generating the roam response primitive upon receipt of the roam request packet from the new AP; and

triggering the sending of the roam response packet from the home AP to the new AP as a response to the roam request packet to indicate that the bi-directional tunnel is established, the roam response packet comprising a packet format for an IAPP MOVE-response with an addition of a field for the home AP IP address and a mobile terminal IP address.

17. The method of claim 14 further comprising:

generating a create-tunnel response primitive in the new AP when the mobile terminal moves within a foreign network or when the mobile terminal moves between foreign networks; and

triggering the sending of a create-tunnel request packet from a new foreign AP to a previous foreign AP when the mobile terminal is moving from one foreign subnetwork or network to another, the create-tunnel request packet comprising a packet format for an IAPP MOVE-notify with an addition of a field for the new AP IP address and a mobile terminal IP address and indicating a new foreign care of address to the previous AP, the create-tunnel request packet triggering creation of the unidirectional IP tunnel from the previous AP to the new AP to which the mobile terminal attaches.

18. The method of claim 17 further comprising:

generating a create-tunnel response primitive at a previous AP for the mobile terminal when the mobile terminal moves within or between foreign networks; and

triggering the sending of a create-tunnel response packet from the previous AP to the new AP as a response to the create-tunnel request and indicating that the unidirectional IP tunnel is established, the create-tunnel response packet comprising a packet format for an IAPP MOVE-response with an addition of a field for the new AP IP address and a mobile terminal IP address.

19. The method of claim 10 wherein adding onto management entity architecture for the AP in an AP protocol stack further comprises including an ordered list on every AP

acting as a home AP of all associated mobile terminals that are currently moved into a network with a different IP domain, and including an ordered list on every AP acting as a foreign AP of all visiting mobile terminals for which the foreign AP has established IP tunnels toward the home AP of the visiting mobile terminal.